PATENT-OFFICE AGRICULTURAL REPORT.

[Third Article.]

DOMESTIC ANIMALS.

Sixty-three pages of the Report are devoted to Domestic Animals, and the influences upon them of a change of soil or climate, or variation of food, from their native condition. These facts need to be better understood, and if the arguments of Mr. Browne are not conclusive, they are worthy of attention; and, if not correct, of refutation. The Report says:

"If sheep are carried from either of the temperate zones to the burning plains of the tropics, after a few years, material changes take place in their covering. The wool of the lambs, at first, grows similar to that in the temperate climates, but rather more slowly. When in a fit state for shearing, there is nothing remarkable about its quality, and when shorn, it grows out again as with us; but if the proper time of shearing be allowed to pass by, the wool becomes somewhat thicker, falls off in patches, and leaves underneath a short, close, shining hair, exactly like that of the goat in the same climate, and wherever this hair once appears, there is never any return of wool. Numerous facts of a similar nature have also been observed in other animals: For instance, in the Cashmere goats, which have been brought down from the mountains of Thibet to Kanaur, in British India, where the mean annual temperature is but 65 deg. F., the down, or undervest of their wool, that grows in colder climates directly under their fine, long, silky hair, wholly disappears the first year."

This is a matter that is certainly very interesting to those who have undertaken to introduce fine wool sheep into the Southern States. Thus, according to the Report, color depends much upon light; thickness of hair or wool, upon heat or cold; and size, form, or the secretion of milk, upon the scarcity, abundance or quality of food. It is also stated that the London dray horse, removed to Arabia and subjected to the same influences as the native horses of that country are exposed to, in the course of a few generations, he will present the leading characteristics of the Arabian horse. This may be so, but we are not prepared to believe it; we need a little more light to get that through our wool, nor are we prepared to believe the following "notable fact:"

"It is also a notable fact that cattle reared for several generations on rich soils, as those in the West Riding in Yorkshire, in England, become very large and fat, and are distinguished by the shortness of their limbs, while in dairy and colder situations their whole bulk is less, and their legs are more muscular and strong, which powerfully verifies the truth of the axiom in breeding that 'good cattle are coincident with good soil,' and are never found as a race on a bad one."

It is equally notable as a fact that the Spanish cattle that have been reared more than several generations upon the extraordinarily rich soil of Louisiana and Texas are the same long-legged, slim-bodied, lean fleshed bullocks that they were when introduced to the country two hundred years ago.

The Report states that a calf should never be changed suddenly from all milk to all grass, but that it should be brought about gradually; otherwise the growth may be injuriously affected:

"The food with which they are fed has a powerful influence on the milking properties of all cows; and the mode in which they are reared has a considerable effect on their capacity to give milk.

"In milk we have all that is necessary for the growth of the young animal, and it is the type and representative of all food; for, unless an aliment contains the principles of milk, it is not fitted for the promotion of the health and perfect development of the body.

"It is a bad thing to feed calves on skim-milk, as both the butter and casein have been removed in the shape of cream. Earl Spencer of England, who was very successful in weaning his calves, fed them first with new milk and then with skim-milk and meal—the latter supplying the necessary nitrogen and nitrogenized materials.

Exercise for a calf that is to be raised is a necessity, but for all fatting animals the reverse. Care also should be taken not to expose them to the cold, and particularly to sudden changes. Much exercise of milk cows, says the Report, decreases the production of butter, and increases the yield of casein. Poor pastures produce most cheese, and stall-feeding most butter.

It is stated that animals whose forms indicate large liver and lungs are coarse in bone and muscle and unprofitable to feed: and the opinion prevails that the fattest animals have the smallest liver and lungs. Thus, if two animals were each to eat 100 pounds of food, and one were to secrete 60 pounds of bile, and the other only 40 pounds, the food that was not formed into bile would be converted into fat; hence the gain on the animal with the small liver. The outward signs by which to select beef cattle to feed would be small bones, fine hair, small ears and tail, and soft skin. All animals fatten fattest—that is most profitably—at the latter end of the feeding season. A good judge could select cattle blindfold, by the hand alone, either for the feeding-stall or shambles. True, he could not determine the purity of the particular breed, but he would other points. In determining purity of blood, color of hair and skin must be examined:

"The color of the bald skin on the nose and around the eyes is always definite and without spots. This last is an essential point. When horns exist, they should be smooth, small, tapering, and sharp-pointed, long or short, according to the breed, and of a light color throughout in some breeds, and tipped with black in others. The shape of the horn, however, is a less essential point than the color."

The Durham breed of cattle are called short horns in this country as well as England, because another breed are known as "long horns." The Spanish, or, as they are called here, Texas cattle, are distinguishable by their extremely long horns.

The bodies of the highest breed beef cattle, if split through the back bone after the neck and legs were cut off, and laid down upon the flat side on the ground and marked around, would show the form of a straight-sided parallelogram. The ribs should project out from the back bone at right angles before they commenced to curve. This makes the bullock broad on the back, when fat, and gives the most meat in the most valuable spot. Fine or small bones do not indicate weakness in a working animal, and for beef the bone should bear a small proportion to the meat.

The expression of the eye is an excellent index of many properties in the ox. A dull, heavy eye certainly indicates a slow feeder, or bad health. A roving eye, showing much white, is expressive of a restive disposition. The best handling bullocks for feeding have a thick, loose skin, floating, as it were, on a layer of soft fat, yielding to the least pressure, and springing back toward the fingers like a piece of soft, thick chamois leather, and covered with thick, glossy, soft hair. The skull of an ox should be broad across the eyes, and face long and tapering below, and nostrils large; the neck small and tapering, carrying the head well up and easy. Some of the best externally appearing fat cattle do not yield internal fat. This is a complaint of New-York butchers against the Western Durham. The first point that shows fat in high bred bullocks is the top of the rump, and sometimes leads persons to suppose the animal fatter than he really is. It requires great experience to tell whether an ox will "die well,"—that is, yield internal fat and cut up advantageously for the butchers' customers. We quote the language of the Report respecting Devon cattle:

"On the whole, there is scarcely any breed so rich and mellow in its touch, so silky and fine in its soft, long hair; added to which, it has a greater proportion of weight in the most valuable joints, consuming at the same time less food in its proportion.

"For feeding purposes, the Devons possess every qualification to fatten, being celebrated for the fineness of their flesh and the lightness of their offal; and, although they do not attain so great a weight as some other breeds, they will fatten at a very early age."

Devon cattle will thrive upon fare that would not support some other breeds. They bear a cold climate, and for working purposes, the Devons are unequalled, and no description of cattle can be compared with them, either for quickness of step or endurance of "pluck." Old Devon oxen fatten to 11 cwt. or 12 cwt. of beef, but require a good deal of feed. Butchers prefer them above all others in the New-York market.

A great deal is said in the Report upon the value of beef, cows, oxen, &c., in various places. From the "Condensed Correspondence," we derive the following items of valuation in 1855, in the various localities:

	Beef, ₩ lb. c. c.	Oxen. ₩ pair. $	Cows, ₩ head. $	Calves, ₩ head. $	Steers. ₩ head. $
Cherokee Co., Ala	—@5¼	....	....	....	....
Middletown, Conn	....	....	40@100	....	....
Newcastle, Del	....	....	—@40	....	....
Woodford Co., Ill	—@4¼	....	25@ —	....	—@25*
Fayette Co., Ind	....	....	....	....	20@30
Delaware Co., Iowa	....	85@150	20@ 30	8@15	15@30*
Shelby Co., Ky	....	....	....	—@10	40@65*
Clark Co., Mo	....	....	....	5@ 6	....
Johnson Co., Mo	....	....	....	....	9@25‡
Monroe Co., Mo	5¼@5¾	....	20@ 30	....	12@15‡
Allegany Co., N.Y.	....	....	....	....	25@40*
Ontario Co., N.Y.	....	125@180	30@ 50	....	....
Bedford Co., N.Y. } Westchester Co. }	....	....	30@ 45	10@15	....
Loraine Co., Ohio	....	80@125	....	....	....
Allegheny Co., Pa	....	....	25@ 50	....	....
Beaver Co., Pa	4 @8	....	12@ 15	2@ 3	....
Mifflin Co., Pa	....	....	35@ 45	....	25@ —*
Berks Co., Pa	....	....	25@ 40	....	20@25*
Fayette Co., Pa	....	....	....	....	35@50§
Mercer Co., Pa	....	....	15@ 25	....	....
Grayson Co., Texas	....	....	15@ 20	....	12@15*
Jefferson Co., Va	....	....	....	....	40@50*
Kanawha Co., Va	....	80@100	....	....	18@20§
Los Angeles Co., Ca	....	....	40@ 50	....	....

* Three years old. † One to three years old. ‡ One to four years old. § Four years old.

The following table shows the comparative prices of butter and cheese in the places named:

	Butter, per lb.	Cheese, per lb.
Cherokee Co., Ala	9 @10	....
Los Angeles Co., Cal	50 @75	....
Newcastle Co., Del	av. 25	....
Woodford Co., Ill	10 @20	— @16
Allegany Co., N. Y	12½@25	6 @ 8
Ontario Co., N. Y	16 @25	8 @12
Bedford, Westc'r Co., N.Y.	av. 24	....
Beaver Co., Pa	av. 15	8 @12½
Berks Co., Pa	av. 17	....
Chester Co., Pa	30 @35	....
Mercer Co., Pa	av. 12½	— @ 7

Upon the breeds of cattle a good deal of information is afforded. T. L. Hart, of West Cornwall, Conn., says in a letter:

"We have among our cattle a breed which have been kept on the same farms for at least one hundred years. They have not only been crossed with the other old breeds of this section, but with the Devons and Short-horns, and still retain most of the peculiar characteristics of the originals. Our best cattle, however, are crosses between the common breeds and the Devons."

Alex. Heron, near Connersville, Ind., says:

"The value of a bullock, at one year old, may be estimated at $8; at two years old, at $20; and at three years old, at $35. The cost of transportation to New-York, per head by railroad, by the way of Buffalo, is $14. The cost of driving to Cincinnati is $2 a head."

D. R. Stillman, Alfred Center, N. Y., says:

"Short horns, materially improve the old breeds for beef without detriment to their milking qualities.

"The cost of raising a bullock to three years old is about $7 a year, at which age he will bring from $25 to $40. The cost of transportation to New-York, by railroad, when there are more than one, is $13 17 each."

This is certainly a mistake, since the cost from Indiana is stated at only $14 each. Gershom Wiborn, Victor, Ontario County, N. Y., says:

"Our old race of cattle is nearly extinct. In color they were black, brindle or speckled; they had hollow backs, cat hams, and lopped horns. There were among them, however, many noble specimens of working oxen, bullocks and milk cows. Our present cattle consist of crosses of the old race with the Devons, Durhams and Herefords. They are still improving, running more and more into the Durham, for the reason that this breed for beef and milk is held in the highest favor."

A. F. Dickenson and others, Committee of the Farmer's Club, Bedford, N. Y., say:

"The kind of stock now most profitable for us to raise is cows, as they are in great demand for milk dairies for the supply of the New-York market. The cost of raising will average at one year old about $12, valued also at $12; at two years, $20, valued at $25; and at three years old, $30, and valued at $30 or $35 each. The cost of transportation to New-York by railroad is about $1 50 each.

"We find the Devons to be the best stock for labor, or their cross with other breeds."

John Young of Forest Grove, Penn., says:

"The Short horns, Ayrshires and Alderneys are considered the best for dairy purposes. Some fine stock is produced by crossing these with the common cattle. Good milk cows this season range from $25 to $50 each. A large majority of the cattle raised in this county are of the common stock, small in size, and without any particular recommending qualities."

C. Snively, Alleghany County, says:

"The Short-horns are held in high estimation, both for their beef and milking qualities. This is the breed most generally sought after."

D. Minis, Beaver County, Penn., has the following:

"Beside the common cattle of this county, there are crosses between them and the Durhams and Devons, those of the former being considered the best for beef and milk."

Albert Hoopes, of Westchester, Penn., says:

"The Durhams are best for beef; the Devons for work and the Alderneys for butter. It is hard to find an animal which does not contain blood of some of the improved breeds."

The following is from J. S. Gore, of Tippecanoe, Fayette County, Penn.:

"Formerly, the cattle of this county were the most deplorable-looking specimens ever seen; but a new era has dawned, some beautiful Devons having been introduced. Still, the large and symmetrical Durham is the first on the list. It is the best milker and the best beef, and grows to an enormous size. It costs about $6 to keep a calf the first year, $8 the second, $10 the third, and $11 the fourth, making $35."

R. W. Baylor, Jefferson County, Va., says:

"We have some of the half-bred 'Kairi' or 'Damascus' cattle, raised from the original pair brought to this country by Lieut. Lynch in 1848 which surpass any others for the yoke I have ever seen. They are of fine size, almost as fleet as horses, perfectly docile and tractable and haul heavy loads in the hottest weather without lolling like our common cattle. Their gait is quick and brisk, and they will make their trips to market and back as soon as a horse. I am not sufficiently experienced to speak knowingly of the milking qualities of the cows. They have been represented as great milkers in their Eastern home. The cost of transporting a bullock to Baltimore on foot is $1 25; by railroad, about $6."

Albert Hoopes of West Chester, Penn., makes the following statements:

"For the dairy in this county there are good cows of all the improved breeds, but I believe that our best stock is yet to be found among our common cows.

"A good cow will make from 200 to 300 pounds of butter in a year, worth from 30 to 35 cents a pound. My dairy of six cows has averaged 230 pounds of butter a year."

The statements of the two last named persons, particularly, contain some important facts for farmers. We saw the pair of Damascus cattle when first imported, and gave an opinion that they would be found extremely valuable for working oxen. We commend the subject to stock importers. We think it will be found worth their while to introduce more of these cattle into the country. The statement of Mr. Hoopes, of the quantity of butter made from his cows, of the common breed of the country, is also worthy of consideration.

Upon Horses a variety of important facts are furnished. It appears from a table in the Report, made up from a careful census of horses in France in 1850, that there were 2,983,936 horses in the Empire that year, and that the increase in ten years was a fraction over six per cent.

In Russia there are seven imperial establishments for improving the horses of the country. These are destined to breed stallions for different services. One is a nursery of pure-blood English and Arabian horses; one department breeds for saddle-horses, one for light cavalry, one for the cuirassiers, one for large carriage horses, one for heavy, and one for light draft horses, and one for farm work. In 1850 there were 1,440 stallions. We quote:

"The following are the several varieties of Russian horses:

"'The Mountain' race, descended from Arabian stock.

"The 'Crimean,' also from the Arabian, which keep a round pace across the steepest mountain paths.

"The 'Don' horse is light and quick.

"The 'Bashkir' and 'Kirghis.'

"The 'Kalmik' horse, very strong, patient, and accustomed to graze during Winter. It is bony, large-headed and stubborn. All of the preceding are adapted or used for the saddle.

"The 'Viatka' horse, found in the province of the same name, though small, is best suited for the purposes of husbandry and post service, being capable of carrying heavy loads.

"The 'Obvan' horse is of good proportions, commonly fourteen hands high; fine-looking, quick in its motions, and untiring, quiet, and docile. Its color varies from sorrel to chestnut or russet, and sometimes, though rarely, to bay or black. On account of its strength, it is well adapted for agricultural labor and for carrying merchandise.

"The 'Bitioughine' horses are of medium size, large but not fleshy head, with small, bright eyes, short neck broad chest, round, slender back, strong and steep rump, large and stout leg-bones, flat hoofs, feet covered with thick hair, and long mane and tail. These horses are very intelligent and quiet, regular in their draft, and able to endure much fatigue, running from thirty to fifty miles, without resting, and one can draw a load of 1,800 pounds or more.

"The 'Kazan' horse, is a cross between the Viatka and Bashkir breeds.

"There is also the 'Metsensk' horse, from Metsen, in the province of Archangel, quite small in size, but strong. It is satisfied with very coarse food, even with moss, never tasting oats, which do not ripen in that region."

In 1851, the census gave the number of horses in Russia at 17,092,335. It is a question whether some of these hardy Russian breeds might not be imported to the advantage of this country.

We next come to horses and mules in the United States. From the condensed correspondence upon this subject we select a few facts, as follows: Jackson County, Alabama: Mules cost $25 to raise till three years old, and are worth $60 to $100 each. Newcastle County, Del.: Mules are used in teams, but not much on farms. A good farm horse is worth $150. Lee County, Ill.: It costs to raise a colt three years old, $40. Good horses are worth $300 to $400 a pair. Woodford County, Ill: Colts five or six months old are worth $25; at a year and a half, $45. Five-year old horses, $90 to $150 each. The price has advanced 25 per cent in a few years. Fayette County, Ind.: Cost of raising colts: One year, $30; two years, $50; three years, $75, and sell at $80 to $100; at four years at $100 to $150; at five years, $100 to $200. Delaware County, Iowa: The cost of raising colts till three years old, $25 to $30. Horses sell from $100 to $200 each. Macomb County, Mich.: Cost of raising colts, $10 a year. At three or four years old they sell for $100 to $150 each. Greene County, Miss: Cost of raising mules or colts, three years old, $35. Selling price, $75 to $100 each. Cost of transportation to Mobile, $5 each. Monroe County, Mo.: Mule colts sell at $40 to $50. At two years old, $100 to $110. Stock mules, in lots, one year old, $60; two years, $80; three years, $100. Horses, $80 to $200 each. Cost of raising mules, $10 a year. Merrimac County, N. H.: Horses, four years old, are worth $100 to $150. Salem County, N. J.: Roadsters, $125; a four-minute horse, $150 to $175; a three-minute horse, $300 to $500. Allegany County, N. Y.: The cost of raising a horse to four years old, $60; selling price, $80 to $150. Ontario County, N. Y.: Price of a five-year-old horse, $100 to $200. Allen County, O.: Horses at four years old are worth $70 to $150. Allegheny County, Penn.: It costs $18 a year to raise colts till three years old; average value then, $80.

"The cost of raising a mule till two years of age is about $20, when it is worth from $80 to $120. At this age it is put to work. Many are used about the coal mines, where they answer a much better purpose than horses. Large-sized mules, at five years old, will command from $175 to $200 each."

Beaver County, Penn.: Price of good work horses, $80 to $150 each. Berks County, Penn.: Cost of raising a colt three years old, $60; selling price, $80 to $100. Chester County, Penn.: Value of a five-year-old horse, $100 to $250. Jefferson County, Va.: Cost of raising colts, $18 a year; value, at three years old, $100 to $150. Freight to Baltimore, $8; on foot, $3.

INDUSTRIAL AND SCIENTIFIC INTELLIGENCE.

THE ADRIATIC.—The Collins steamship Adriatic has the largest and most powerful machinery ever set afloat. Those familiar with the difficulties of constructing and adjusting large machinery, who know that the time required and expense involved increase very rapidly after a certain reasonable limit is passed, are not surprised to find that she is still detained at her dock after nearly a month has passed since the time first estimated for her completion. Those less informed, however, have affected to discover indications of ultimate failure, either in an alleged bad model, allowing her to settle too deep in the water, or in great undefinable difficulties attending the arrangement, the valves, or some other feature of the engine department. Her boilers are new, patented in 1854; her valves are still newer, being only patented during the present year, if at all; and her condensers are still more novel. Yet, with these and a considerable number of minor novelties involved, there is no detail which has not been carefully and satisfactorily tested on smaller constructions, and introduced on this ship without modification, except such as experience naturally and invariably suggests. Her boilers are substantially the same as those now in use on the Susquehanna, Merrimac, Wabash, Minnesota, &c., and which have realized the evaporating of as high as 8¼ lbs. of water with the consumption of one lb. of coal. They were invented by D. B. Martin, the very efficient engineer-in-chief of the Navy, the man under whose care as Chief Engineer the since ill-fated Pacific first attracted attention by her unprecedented quick passages, and who, when subsequently transferred to the Arctic, succeeded in driving that ship across the space between the Battery and the Bell Rock at Liverpool in 9 days, 17 hours and 7 minutes, clock time. Her engines are similar to those of the Arago—a compact but easily accessible and convenient arrangement, and one which harsh usage has proved to be less strained even by "racing," or the rapid whirling of the wheels when thrown out of water in a sea way, than any of the old and cumbrous side-lever constructions formerly employed. Her valves are but enlarged copies of valves which have been working nearly or quite two years on a large stationary engine in Elizabethtown, with such success as to present more finely polished surfaces, and to appear actually tighter and better to-day than when first put in. The hull was modelled and constructed by the unassuming and courteous, but eminently successful New-Yorker, the pride of American ship-wrights and of Americans generally, the lamented George Steers. Her machinery throughout has been engineered by Horatio Allen, a name identified with most of our great engineering enterprises, from the commencement of our great docks and Croton Aqueduct down to the prospective success of the Adriatic as the swiftest and staunchest vessel on the ocean, and a name which has been in no wise injured in the esteem of sensible men by the brutal and uncalled for batch of eloquence and absurdities recently launched at him in the shape of a pleading in a patent case, but which having been published in one or more of the dailies, may, by impressing shallow brains with a conviction that the object was weak both in intellect and integrity, have conduced toward the originating of the reports in question.

The machinery of the ship has been delayed, first, by the tardy arrival of the shafts and heavy forgings which were executed at a large forge in Pennsylvania; and, secondly, by a mistake of the workmen in locating holes in the tube-sheets for the condensers, which has subsequently compelled their removal and renewal. The mistake induced a leakage which, though too slight to be of moment in an engine working on or near the land, it has been judged advisable perfectly to remedy before this noble ship shall be permitted even to make her trial trip.

The difficulty of handling the parts of machinery where what are ordinarily trifling parts compel the use of powerful tackles and derricks may be conceived when the weight of the principal parts are considered. The main shafts are each 37 feet 9 inches long and 27¼ inches in diameter at the spring bearings, and weigh, finished, about 34 tuns. The wheel flanges weigh each about 20 tuns; each cylinder, with its connections, about 100 tuns; the condensers, complete, about 30 tuns, and the whole engines and wheels, complete, about 1,000 tuns. The 8 principal and 2 auxiliary boilers, each of the former of which contain 6 furnaces, weigh, altogether, about 360 tuns. The piston-rods are each 14 inches in diameter, and each crank-pin, 16 inches. The wrought-iron cranks, of which there is of course one on each side, connected by a short drag link, weigh, when bored, pared and finished, 8 tuns each. The chief engineer to take charge of this mammoth machinery when completed, will be Mr. Robert Robinson, formerly of the Baltic.

THE MERRIMAC.—The new steam frigate Merrimac, much admired even in Great Britain for her proportions and evident efficiency, seems to possess a quite unlooked-for defect, that of insufficient draught in her furnaces. The boilers are Martin's patent, containing many upright tubes, between which a current of hot gases is compelled to pass, and the difficulty has been explained to lie in the position and not in the number or size of the tubes. In the Merrimac the tubes which contain water to be heated are ranged zigzag like the rails of a worm fence, a position proved to be far superior to straight rows so far as absorbing the heat is concerned, but which by continually changing the motion of the products of combustion too much retards the draught. That the "calorimeter" of a boiler, or the sectional area of the flue space through which these hot gases pass, should bear a certain proportion to the area of the grate, was established many years ago; but in this style of boiler, experiment has determined that the effective calorimeter should be measured, not by the actual space left between the tubes in any given cross-row, but by the clear space which exists in a straight line, or which can be "seen through" between the rows. In order to agitate the gases, and bring all their heated particles in contact with the tubes without too much obstructing their passage, it is expedient to place the two-inch tubes, with their surfaces about an inch and three-eighths apart, in the direction across the boiler, and then to zigzag them three-eighths of an inch in the longitudinal rows, thus leaving the clear space one inch wide. This is the general design of the inventor, but in the boiler of the Merrimac it appears that the constructors placed them only the same distance apart, and zigzagged them five-eighths of an inch, leaving the clear space or true calorimeter but three-quarters of an inch between each row. The Minnesota, the machinery and boilers of which were designed by Mr. Martin himself, and built at the Navy Yard at Washington, is reported to have plenty of draught.

PEAT SUCCESSFULLY CARBONIZED.—A French engineer in the Russian service believes he has succeeded in discovering a process for converting common peat into a coal, similar in every respect to anthracite. Persons who have seen specimens of this artificial mineral, state that it is equal in intensity of heat to the common coal, while the cost of its production is 60 per cent less. It is also available for making gas, coal tar, ammoniac, alcohol, coke, and volatile oils. One thousand kilogrammes (about 2,204 pounds) of this material makes 5,400 cubic feet of gas. The discoverer has obtained a patent for the Russian dominions, and a company on a large scale is talked of at St. Petersburg for the purpose of working the patent and establishing agencies throughout the whole of the Russian Empire.

OZONE.—M. Scoutetten has brought out, in a work on Ozone and its properties, the first distinct treatise on this interesting and debatable subject. The author believes ozone to be electrified oxygen, but retains the term ozone because custom wills it. Among other opinions and facts given by M. Scoutetten, the following deserve mention: Ozone is the most powerful oxidating agent known. It is not developed in crowded and filthy localities. It is developed freely on mountain heights, over water, and wherever vegetation is luxuriant. The most common chemical agent in preventing the action of the ozonometer is ammoniac. An excess of ozone in the atmosphere is a cause of catarrh, bronchitis, pneumonia, and other diseases of the hyperinotic type. [Medical Times and Gazette.

PRECAUTION AGAINST POISONING.—The College of Physicians in Ireland have directed that all medicines intended for external use should be dispensed in angular vessels, and that the more active and poisonous preparations and articles of the "Materia Medica" shall be kept and sold in similar bottles or vessels, while those intended for internal use shall be dispensed in round bottles, and also the less active simples and compounds kept and sold in round vessels, the intention being that the touch alone may be sufficient to distinguish vessels containing articles possessed of dangerous qualities.

THE NEW METAL ALUMINUM.—The Danish brig Sondetjylland was despatched in June last to Arksuk Fiord, in lat. 61 deg. 20 min. on the west coast of Greenland, for the purpose of bringing back minerals, especially cryolite, for the obtaining of which, peculiar privileges had at different times been granted by the King of Denmark to individual and associated miners. The brig was consigned to Copenhagen, and arrived at that port on the 21st of September with a full load of cryolite, the first cargo ever shipped. It is a curious mineral, only found in Greenland, and is, we believe, the only substance from which this light metal so abundant in all parts of the world has ever yet been successfully extracted. M. de Lille, of Paris, has discovered a process by which aluminum may be obtained from cryolite, so as to afford it at as a low a price per ounce as silver; and, since an ounce of the former has four times the volume of an ounce of the latter, it may give us articles of plate of the same size at one-fourth the price.

AMERICAN FILE MANUFACTURE.—We have before remarked on the limited quantities and uneven character of American cast steel, and claimed that the two are related as cause and effect. The dozen or more steel manufactories in our country are amply sufficient in number to supply the world. We need larger concerns, concentrating, like those of Sheffield, great accumulations both of capital and of skilled labor—capital sufficient to conduct the business continuously, economically and reliably, whether the demand be feverishly high or temporarily depressed to zero, and workmen with long years of experience in all the peculiarities of our ores and materials. It may be a subject for serious consideration whether, in the present condition and prospects of the business, the manufacture of the highest-priced article should not be abandoned, and cast steel be admitted duty free to promote the manufacture of tools and cutlery. As nothing but the Kingsdat Mountain region of Siberia has yet produced "Old Sable" iron, may we not even with our own resources so notoriously undeveloped, consent that nought but the Dannemora mines of Sweden shall furnish material, and naught but Sheffield and Warrington hands shall produce therefrom the Simon Pure cast steel? Though manifestly impolitic to concede this point, a removal of tariff from cast steel in bars would probably do much to develop the manufacture of small articles therefrom.

The file business has now been carried on in this country for twelve or fifteen years, and American workmen have been gradually increasing. America, like every other country, has failed to produce a machine which will perform this labor, although it creases the steel and makes it resemble a file in appearance. The forte of Americans, therefore, the production of labor-saving machinery, has been formally decided inadmissable, but there are manufacturers who contend that, although originally indebted for instruction to emigrants from the workshops of Lancashire, the best and most skillful workmen now in the business are Americans. By the census of 1850 there were 300 file-cutters in the United States, and it is believed that American files are equal, if not superior, to any produced in the world.

Mr. James Wolstenholme, who came from Sheffield in 1839 with scarce a dollar in his pocket, is now employing about thirty men at Providence making every variety of fine and coarse files, and supplying some of the best machine-shops in New-England. Mr. Benj. S. Stokes, formerly superintendent of the Croton File Works, employs about forty hands, making every variety, of excellent quality, at Manchester, N. H.; and there are concerns at Taunton, Lowell, Boston, Philadelphia, Troy, Albany, Newark and other places, actively and, we believe, all profitably employed in this manufacture. The heaviest in America—the Arcade File Works, at Sing Sing, this State—employs about 110 hands; the next largest—the Croton, at the same place—gives employment to ninety or more, and a variable number, reaching last Spring about 100, are employed in the State Prison at the same place. Fifteen years ago the business was barely commenced in the Prison; seven years later its profit and attractiveness induced citizens to commence it. The increase within the last five years, not only in this great center, but throughout the country, has been very rapid. The value of the entire production is about half a million dollars annually. Of the files used in this country, there are imported say from England eight-tenths, from Germany one-tenth—leaving one-tenth of the demand to be supplied by domestic goods.

Mr. G. B. Hubbell, the proprietor of the Arcade Works, in a letter published this season, in answer to an inquiry in regard to the difficulties contended with, says: "1st. We have to compete with a large "amount of inferior goods, imported from Germany, "and sold here at a low price. Many of these files "are made of cast iron. 2d. There are many worth-"less files imported from England, and a great many "medium to fair quality, and a further large quantity "of very good ones. We have no trouble in driving "back the inferior and worthless, but the merchants "are constantly striving to class our files with the "medium English goods, and thereby force us down "in price."

AUTOMATIC WHISTLE FOR LOCOMOTIVES.—Mr. James Harrison of this city has put in successful use a device for whistling automatically at every point required on any given railroad. We have a habit of riding on the locomotive whenever practicable, and of observing with some attention the operations of different individuals in managing these delicate, complicated, and intensely powerful monsters. Ringing the bell or whistling with undeviating certainty at just the proper distance before reaching each crossing we know to be one of the most difficult duties, and one which the performance of the machine referred to, the "Fordham" on the Harlem Railroad, has proved to belong to that great class which can be performed better by mechanism than by hand. The manner in which all the details of Mr. Harrison's invention are arranged so as to overcome the practical difficulties and provide for all possible contingencies, can hardly be too much admired. The motion is derived from one of the shafts of the truck. A strong worm or endless screw thereon gives a slow revolution to a stout wheel into which it meshes, and the motion of this is carried up to the top of the boiler by the aid of a shaft with universal joints and a strong sleeve-coupling, so as to allow for the bounding and working of the engine. It here results in giving a very slow rotation to a large screw, in the rectangular threads of which wedge-shaped stops or small cams are inserted so as to act on a lever and sound the whistle at a corresponding point in the track. The truck wheels never are tempted, like the driving wheels, to slip on the track, and being made of hard iron, chilled on the tread, never sensibly change their diameter by use, so that the motion of the screw, if correctly arranged at the first, never changes its relation to the length of road until the wheels are changed; but provision is made for adapting the parts to a change at any time with little trouble, and the engineer has always within reach a small handle which allows him to set the screw forward or back, so as to give all the signals a little sooner or later, whenever he deems it advisable, or temporarily to disconnect it altogether and sound or stop the whistle by the ordinary means. The invention is a perfectly practicable one throughout, and appears to be a great step toward perfecting the railroad system. If the ghosts of the scores, or, perhaps, hundreds annually killed at the crossings in this country—a number which has almost induced a law compelling railroads to carry all roads either over or under their lines—could step forward or urge the adoption of a device of this kind, it would not be long in finding a place on every locomotive in the Union. It can be applied to old nearly as well as to new machines, and the money annually saved to companies, first, by avoiding many of the accidents of this class, and, second, by being able to prove that a loud and long signal was certainly made at the proper time as a warning to the careless countryman, would probably be sufficient to pay the expense in a short period of time.

AN INDELIBLE PENCIL.—This paragraph is written with a pen of an entirely novel construction. To all appearance a pencil, the article is yet really a Fountain Pen. Ink is used in it as in Prince's Protean Fountain Pen. It is filled in the same way and the tube is made of the same material; but instead of flowing out on a pen of the ordinary construction, the ink flows out through a fine tube tapering to a point and split lengthways. The tube is about as long as that of an ordinary gold-case pencil, which the whole affair resembles very closely, except that it is black and is much lighter. The inventor is Dr. N. B. Slayton of Madison, Ind. The new pencil will be found very convenient for memoranda, but, as it is capable of making only a line of uniform thickness, we apprehend that it cannot supersede Mr. Prince's Fountain Pen, which for ordinary writing is the best thing within our knowledge. We have used this now for nearly two years, and during that time have saved many hours' dipping for ink, beside the convenience of always having pen and ink at hand, without being compelled to carry about a little inkstand, which is always tipping over. The pen which we ordinarily use is not of extraordinary size, but we have written six columns of this type of THE TRIBUNE without refilling it.

COTTON MANUFACTURE.—In the list of patents issued a short time since, that to George G. Henry, who is represented to be an intelligent merchant, is claimed by some as destined to create quite a revolution in this branch of industry. It proposes to convert the seed cotton on the plantation, by one continuous process, into merchantable yarn, with the ordinary labor of the plantation. We know little of its practicability at present, but will keep our readers informed if anything is developed of importance.

ANOTHER METAL DISCOVERED.—Dr. Hoffman, following in the wake of Davy and Deville, has come forward as a discoverer of metal. In a lecture delivered by him lately at the British Royal Institution, he exhibited a bright glistening mass, something resembling butter, and described it as ammonium—the metallic base of ammonia. This is regarded as a highly interesting chemical fact, inasmuch as it strengthens the views entertained respecting the constituents of the atmosphere, viz.: that they are all metallic.

VERMONT INDUSTRY.

Correspondence of The N. Y. Tribune.

BURLINGTON, Vt., Nov. 24, 1856.

A few weeks ago I gave the readers of THE TRIBUNE a brief account of what Cannon and other millionaires of the Empire State are doing on the hill south of the village, and I now propose to write of other matters under the hill, on the lake shore. Here stands the pioneer Mechanics' shop, a building 400 feet long four stories high, built of brick two or three years ago by some of our enterprising capitalists. One half of the building is rented to C. Ribburn & Co., who occupy it in the manufacture of chairs for the million. They employ 100 hands, and turn out about 3,000 chairs per week, which find their way to the Canadas for market, at least the greater portion of them. Nearly twenty cords of maple, beech and birch logs are here sawed, turned and put into chairs of various patterns in six days. These noble hardwood logs are brought upon the cars of the Vermont Central Railway from the valleys and mountain sides, and landed at the door, where they are soon converted into very convenient, durable and ornamental chairs which furnish to the Canadian million very comfortable seats. During the past four weeks these enterprising mechanics have sent from their manufactory 15,000 chairs, the most of which are now in Canada, and the remainder on their way to the South or to the islands of the sea. The turning lathes, circular saws, emery wheels and augers, all turned by steam power, make a tremendous din in the ears of him who is going through the establishment and examining the different departments; but, after all, it is the right kind of music, such as sensible and industrious people love to hear.

They have recently invented what they call a bending machine, which works to admiration, and saves much labor. A piece of timber is steamed and then forced into a cast-iron mold which bends it into any required form; it is then placed in a drying oven, when it is soon fit to form the backs of chairs of any shape. It is pleasant to see a stiff hard-wood stick moving through these molds like a thing of life and as if pushed along of its own mere motion. The inventors claim that timbers for ships may be bent in the same manner and with perfect ease.

In another part of this building is a machine shop where are manufactured "wheelwright machines" which must save a great deal of labor in the construction of carriage wheels. After the hub is turned it is put into this machine, where it is soon bored and mortised. It is a hand-power machine, and so constructed that the wheel is put together without changing the location of the hub. With this machine a person of very limited experience can put together three sets of ordinary-sized wheels in a single day, or bore and mortice a hub and drive the spokes in twenty minutes. An operator with this machine can do the work of at least three men who labor in the ordinary way, and do it too, with more ease and equally well.

There are several rooms in this building which are unoccupied, and are to be let with steam power, affording an excellent opportunity to mechanics who are seeking for places and employment. This chair factory, and the Messrs. Harding's establishment at Shinoochi Falls for the manufacture of doeskins, are the most busy and industrious places in our vicinity. The doeskins manufactured by these enterprising gentlemen are gaining a good name and a wide sale. They employ some three or four hundred hands and feed a thousand mouths which otherwise might lack a sufficiency of food. It is an agreeable sight to witness persons thus employed go into our groceries Saturday evenings, with their honestly earned money in their pockets, and purchase the necessary articles for their families, paying the cash down, and asking no favors except those which a legitimate trade affords. Such indeed are independent, and feel happy because they know they have done their duty faithfully and added wealth to the nation.

I have been much amused to see these industrious workmen come into Dewey's grocery after the week's labor is well done, and call for meal, sugar, coffee, tea, &c.—they do it so honestly and independently. And who has a better right to feel independent than those who honestly earn the money that lines their pockets? By the way, Dewey keeps good liquor, being the authorized town agent under our Maine Law, and many of these mechanics know it, and are occasionally a little sick but our shrewd agent is not often caught napping. He is always furnished with a ready answer to all suspicious calls for liquor, as what follows will show.

"I want a pint of your best brandy," said a mechanic leaning over the counter and speaking in a low voice to the agent.

"And why do you want brandy?" inquired the agent, smiling and gazing into the long face of the customer.

"I keep it as a medicine, and surely you don't look as if you was on the sick list."

"I have a looseness here," replied the other, assuming a serious look, and placing his hand a little below the pit of his stomach.

"Oh, indeed," answered the agent, smiling very pleasantly and looking his customer full in the eye, "I'm sorry, but this is no place to get tight." The fellow went away without his brandy.

PUBLIC MEETINGS.

BOARD OF ALDERMEN.

MONDAY, Dec. 1.—Alderman BARKER, President.

Messages from the Mayor—A message was received vetoing the plans for the proposed new City Hall and making suggestions. The document having been read, was laid on the table and ordered to be printed. Another message was received from the Mayor vetoing the report appointing and reappointing 105 Commissioners of Deeds.

Alderman ELY said, in one of the Charters of the City, the Mayor was declared not to be one of the Common Council. His impression was that the Mayor had nothing to do with these appointments which the statute law of the State says must be made by the Common Council, and no mention is made of the Mayor's approval on the subject. He had no doubt the Courts would decide in this way, was the matter laid before them.

The PRESIDENT held that the Mayor had not the veto power in this kind of appointments. They belonged to the Common Council alone. He would, therefore, rule the veto out entirely.

Ald. CLANCY quoted a special act, providing that all the acts, resolutions, &c., of the Common Council must be approved by the Mayor.

Ald. ELY said there was a subsequent law to the contrary.

The PRESIDENT again said he declared the veto out of order.

Ald. CLANCY appealed from his decision.

Ald. ELY hoped the paper would not be summarily ruled out, but referred to the Committee on Law.

Ald. TUCKER thought it most proper to receive the message and refer it to a Committee, to report on the same, which would form a precedent for the future.

The PRESIDENT then said he would receive a motion on the paper.

Ald. BRIGGS, as Chairman of the Committee on Salaries and Offices, spoke of the respectability of the Commissioners appointed, and thought the Mayor's veto a base reflection on the Committee and the Common Council.

Ald. CLANCY withdrew the appeal, and moved to receive the paper. This motion was carried.

Ald. BRIGGS then moved to refer the paper to the Committee on Law, which was carried.

Communication—From the Controller on the Bureau of Arrears. Ordered printed.

The Central Park—By Ald. VOORHIS, requesting the Commissioners of the Central Park to report to this Board a full statement of its affairs in detail, from the date of its organization to the 1st of December, with all the expenses incurred. Adopted.

The Union Ferry Company—Ald. FOX, presented his report on the course of the Union Ferry Company, and directing them to commute with passengers as heretofore. This was ordered to be printed, preparatory to action on the subject.

The Board adjourned to Thursday.

MAYOR'S OFFICE, NEW-YORK, Dec. 1, 1856.

To the Hon. the Board of Aldermen:

GENTLEMEN: I return the resolutions proposing the adoption by the Common Council of the plans for a new City Hall, presented by B. E. and I. Buckman, without an approval. Without intending to throw any obstacle in the way of the speedy erection of a new City Hall, I cannot give my assent to so important a step as that of definitely determining the plans which shall be adopted without being fully satisfied that they are, in all respects, the best and most appropriate. To decide definitely the plans for a building so extensive as to size—so difficult and intricate in the proper arrangement of its interior design—of so much interest to the character of the city in its exterior architectural appearance, and so great in its cost under the most economical and judicious expenditure of money, is one of the most important questions that has come before me for my decision since holding the office of Mayor. It involves considerations in which citizens of all classes are interested, and should be examined and decided with a commensurate judgment, and only by those who are fully qualified for the duty. It is not an act of ordinary legislation, appertaining to a mere question of every-day routine which any man of common intelligence is capable of acting upon, but it is a subject requiring a thorough practical and scientific knowledge of architecture, the most enlarged and liberal views of form, and beauty, and adaptation in the construction of public edifices of the largest class, and a just appreciation of the necessity of making the additional burden about to be placed upon the tax-payers as light as a proper attention to the object will permit. With these views as to the importance of the decision which shall fix definitely the plans for the proposed new City Hall, and the qualifications of those to whom should be intrusted the power, I find it difficult to bring myself to the conclusion that the members of the Common Council are thus competent. I doubt whether the two Boards who have voted in favor of these plans possess the requisites I have described as necessary to a judicious and intelligent conclusion thereon. I am at least confident of my own unfitness, and therefore cannot say by approving the Buckman plan that it is the best, when, in fact, I am ignorant of the simple elements of architectural science; and am not capable of giving even an intelligent opinion upon the subject. In verbal communications made to this and the last Common